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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/995,336	11/27/2001	Bernard Etkin	ETK 4910.1	9666

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George A Seaby
Seaby & Associates
603 - 880 Wellington Street
Ottawa, ON K1R 6K7
CANADA

EXAMINER

CHAPMAN JR, JOHN E

ART UNIT

PAPER NUMBER

2856

DATE MAILED: 08/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/995,336

Applicant(s)

ETKIN ET AL. en

Examiner

John E Chapman

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-6, 8, 10-15, 17, 18, 21-27, 31 and 34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-6, 8, 10-15, 17, 18, 21-27, 31 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 May 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6 . 6) ☐ Other: _____

DETAILED ACTION

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the pneumatic mount recited in claim 22 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 6, 11 and 14 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 6, it is not clear how the coarse stage isolation mount communicates with the navigation and flight control systems so that the fine stage isolation mount travels along a smoother flight path.

Regarding claim 11, it is not clear that the coarse stage isolation mount controls the position of the fine stage isolation mount relative to a smoothed representation of the flight path.

Regarding claim 14, it is not clear how the coarse stage isolation mount is adjustable.

4. Claims 2-6, 8, 10-15, 17-18, 21-27, 31 and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 34, it is not clear how the coarse stage isolation mount 224 attenuates displacements “above a low pass cutoff frequency” (claim 34, line 5). As best understood, the purpose of the coarse stage isolation mount 224 is to compensate for low frequency, large amplitude motion of the aircraft (page 21, lines 14-16), specifically, for low (<0.5 Hz) and intermediate (0.5 Hz to 5 Hz) frequencies (page 39, lines 13-15). This indicates that the coarse stage isolation mount attenuates displacements due to frequencies below a cutoff frequency (5 Hz), i.e. to act as a high pass and not a low pass filter. It is not clear that the coarse stage isolation mount 224 acts as a low pass filter, and that it attenuates displacements due to frequencies above a low pass cutoff frequency. Likewise, it is not clear that the fine stage isolation mount 222 attenuates frequencies “above a second low pass cutoff frequency” (claim 34, lines 8-9). Rather the fine stage isolation mount appears to attenuate frequencies within a pair of overlapping frequency bands (0.1 Hz to 5 Hz, and 1 Hz to 30 Hz), and hence to operate as a band blocking filter and not a low pass filter.

The above remarks also apply to independent claims 21, 23 and 31.

Regarding claim 6, there is inadequate structure recited to support the “whereby” clause. Mere communication between the coarse stage isolation mount and the navigation and flight control systems does not enable accelerations of the fine stage isolation mount to be substantially

less than the accelerations of the aircraft during flight, nor does it enable the fine stage isolation mount and the gradiometer travel along a smoother flight path.

Regarding claim 11, it is not clear that the coarse stage isolation mount controls the position of the fine stage isolation mount relative to a smoothed representation of the flight path. Rather the coarse stage isolation mount controls the position of the fine stage isolation mount relative to the aircraft (page 24, lines 13-14).

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-5, 8, 10, 12, 13, 21, 23, 24, 31 and 34, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kleinholz (6,196,514 or 2000) in view of von Kann et al. (5,804,722).

Regarding claim 34, Kleinholz discloses a airborne vibration isolation system for a payload 3 comprising a passive isolation mount 5 and an active isolation mount 1 carried by the passive mount. The passive mount attenuates vibrations in one frequency range (e.g., 2-20 Hz in column 5, line 50), and the active isolation mount attenuates vibrations in another frequency range (e.g., 1-9 in col. 15, line 2). To call the passive system 5 a “coarse stage” and the active system 1 and “active stage” is purely semantic. Hence, the only difference between the claimed invention and

the prior art consists in providing a gravity gradiometer in the payload 3. It is well known in the art to provide vibration isolation for a gravity gradiometer mounted in an aircraft, as taught by Van Kann et al. (col. 2, lines 17-20). Accordingly, it would have been obvious to provide a gravity gradiometer in the payload 3 of Kleinholz in order to provide vibration isolation for airborne measurements of the gravity gradient.

Regarding claim 2, crossed dumbbell type gravity gradiometers are well known in the art, as illustrated in Fig. 6 of the applicant, and merely to use such a gravity gradiometer for airborne measurements of the gravity gradient would have been obvious to one of ordinary skill in the art.

Regarding claim 3, the passive isolation mount 5 inherently possesses a natural frequency. The limitation of exceeding the "second low pass cutoff frequency" is not given any weight in view of the ambiguity of the expression.

Regarding claim 4, the passive isolation mount 5 inherently controls displacement of the active system 1.

Regarding claim 5, all aircraft have a flight control system.

Regarding claim 10, the passive isolation mount 5 includes an accelerometer 31 and position sensor 27 for controlling the position of the active system via actuators 21 and 23.

Regarding claim 12, the passive isolation mount 5 includes a position sensor 27 for controlling the position of the active system via actuators 21 and 23.

Regarding claims 21, 23 and 31 the limitation of "said second low pass cutoff frequency being greater than said first lowpass cutoff frequency" is not given any weight in view of the ambiguity of the expression.


Regarding claim 24, it is well known in the art to monitor the position of an aircraft using either an INS or GPS when conducting an airborne measurement of the gravity gradient.

7. Applicant's arguments filed May 27, 2003 have been fully considered but are moot in view of the new ground(s) of rejection.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tryggvason discloses a vibration control apparatus for use on space vehicles.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Chapman whose telephone number is (703) 305-4920.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.


JOHN E. CHAPMAN
PRIMARY EXAMINER